

REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application.

Claims 1, 3-6, 9-15, 17 and 19-26 are now present in this application. Claims 1, 15 and 22 are independent. Claims 2, 7, 8, 16 and 18 are canceled claims. Claims 1, 15, 17, 22 and 26 are amended. No new matter is involved.

Reconsideration of this application, as amended, is respectfully requested.

Objections to Claims

Claims 15, 22 and 26 are objected to for various informalities. These objections are respectfully traversed.

Claim 15 is objected to for reciting "forming an insulating layer electrically insulating said gate line and the gate electrode." The Office Action states that this claim should recite an insulating layer electrically insulating the data line from the gate line.

Applicants respectfully disagree.

In the first place, the Office Action does not state what is wrong with the claimed terminology. The Examiner has the initial duty of supplying the factual basis for the rejection he advances. An Examiner may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or

hindsight reconstruction to supply deficiencies in the factual basis. See, In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968).

Instead of providing a reason to support this conclusion, the Office Action just offers alternative claim terminology. The burden is on the Office to provide objective factual evidence of the basis for any objection or rejection. No such basis has been provided in this case.

Moreover, this language is found in originally filed claim 22, so there is proper basis for the language as part of Applicant's originally filed disclosure, and no previous Office Action has found a problem with this language.

Applicants also respectfully submit that they are entitled to claim what they regard as their invention, especially, as here, where open ended claim terminology is used.

Reconsideration and withdrawal of this rejection are respectfully requested.

Claim 22 is objected to apparently for lack of proper antecedent basis for the language "first and second regions." Applicants thank the Examiner for pointing this out and have amended claim 22, line 11, to change "first and second regions" to - - first and second portions - -, which finds proper antecedent basis previously in the claim.

Claim 26 is objected to because the Office Action interprets the language "a source electrode and a drain electrode connected to the drain line" as requiring the

source to be connected to the drain line. Claim 26 has been amended to place a comma between "source electrode" and "drain electrode" to clarify that the source electrode is not connected to a drain line. Claim 26 has also been amended to recite that the source electrode and the drain electrode being respectively covered with the low reflective layer.

None of these amendments narrows the scope of the claims.

Reconsideration and withdrawal of these objections are respectfully requested.

Claim Amendments

The amendments to claim 26 are supported by Figs. 5-8 and the last two paragraphs on page 7 of the specification, for example. The Amendment to claim 22 merely provides proper antecedent basis for the terminology "first and second portions."

Rejections under 35 U.S.C. §103

Claims 1, 11, 14, 15, 22, 25 and 26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,259,200 to Morita et al. (hereinafter, "Morita"). This rejection is respectfully traversed.

Complete discussions of the rejections are set forth in the Office Action and are not being repeated here.

Independent claims 1, 15 and 22 recite a combination of features regarding a liquid crystal display (LCD) including (1) a pixel electrode having portions thereof formed on the surface of the passivation layer but not over the thin film transistor; and an upper substrate located above the pixel electrode, wherein an area between said pixel electrode and said upper substrate, and above said low reflective layer, is free of any black matrix or light shielding layer, or (2) a method of making the structure set forth in (1).

Applicants respectfully submit that this combination of elements as set forth in independent claims 1, 15 and 22 is not disclosed or made obvious by the prior art of record.

Morita only discloses a low reflective layer 10x on its source line 10 "to preclude unwanted light reflection" (col. 4, lines 51-67). Morita does not disclose a low reflective metal layer disposed on one of the gate line and data line and the area having a channel area, a source area and a drain area, as recited. Moreover, Morita's upper substrate above the pixel electrode does disclose a black mask 62 which is a black layer and/or a light shielding layer. This is just the opposite of what is recited in all of the claims.

Thus, Morita does not disclose or suggest the claimed invention.

The Office Action concludes that it would be obvious to arrange the low reflective layer 10x on the data line or the gate line and on the channel area, source

area, drain area, and to do away with the black matrix (actually, just a black layer 62) "for precluding light reflection."

Applicants respectfully disagree.

The Examiner has the initial duty of supplying the factual basis for the rejection he advances. An Examiner may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. See, In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968).

Moreover, in making a rejection under 35 U.S.C. §103, the prior art as a whole must be considered. The teachings of the applied references are to be viewed as they would have been viewed by one of ordinary skill in the art. Kimberly-Clark v. Johnson & Johnson, 745 F.2d 1437, 1454, 223 USPQ 603, 614 (Fed. Cir. 1984); In re Mercier, 515 F.2d 1161, 1165, 185 USPQ 774, 778 (CCPA 1975). "It is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Wesslau, 353 F.2d at 241, 147, USPQ at 393. In re Hedges, et al., 228 USPQ 685 (Fed. Cir. 1986).

If it were so obvious to modify Morita to remove any black layer from the upper substrate and to provide a low reflectivity layer on the gate electrode and drain electrode as well as on the data line, then why didn't Morita do it?

The Office Action fails to offer any explanation of why Morita did not make the claimed invention. Applicants respectfully submit that it would not be obvious to modify Morita so drastically as suggested because it would not have been obvious to do so.

One reason it would not be obvious to modify Morita as suggested is because Morita teaches that the invention is "preferably provided with at least a shading black mask aligned with the gate line" and that the Morita device "needs to shade the row gate lines" (col. 2, 34-44).

These are positive teachings in the very same reference that provide the top layer with its signal lines 10 with low reflectivity layers 10x. Applicants respectfully submit that such positive teachings teach away from removing the black shade layer for the gate lines.

Moreover, because there is no teaching at all in Morita of using low reflectivity layers on the transistor electrodes, per se, and because Morita is well aware that such layers are provided on signal lines, and because there is no disclosed problem with Morita's transistor electrodes, or with its gate lines and drain lines, Applicants respectfully submit that one of ordinary skill in the art

would have no incentive to go to the trouble and expense of providing such low reflectivity coatings on all these electrodes and lines.

Applicants respectfully submit that the only basis for modifying Morita as suggested is based solely on improper hindsight reconstruction of Applicants' invention based solely on Applicants' disclosure. Accordingly, the Office Action does not provide proper motivation to one of ordinary skill in the art to apply a low-reflective film to the recited gate and drain line and transistor electrode areas of Morita. Nor does the Office Action provide proper motivation for one of ordinary skill in the art to modify Morita by removing Morita's black shading layer that is explicitly taught as being needed.

This absence of a *prima facie* case of proper motivation to modify Morita means that the Office Action fails to make out a *prima facie* case of obviousness of the claimed invention because a showing of a suggestion, teaching, or motivation to combine the prior art references is an "essential evidentiary component of an obviousness holding." C.R. Bard, Inc. v. M3 Sys. Inc., 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998).

Thus, reconsideration and withdrawal of this rejection of claims 1, 11, 14, 15, 22, 25 and 26 are respectfully requested.

Claims 12, 13, 23 and 24 stand rejected under 35 U.S.C. §103(a) as unpatentable over Morita, as applied above, and further in view of U.S. Patent 6,172,728 to Hiraishi.

This rejection is respectfully traversed.

Initially, Applicants respectfully submit that Morita does not make out a *prima facie* case of unpatentability of the claimed invention recited in the claims from which claims 12, 13, 23 and 24 depend, i.e., claim 11 or claim 22, and Hiraishi is not applied to remedy the aforementioned deficiencies of Morita.

Moreover, Hiraishi provides gaps or notches in the gate lines and/or source lines to reduce areas where they overlap with the pixel electrodes and to reduce the parasitic capacitance of the device (col. 5, lines 45-65).

Applicants respectfully submit that one of ordinary skill in the art would not be motivated to modify Morita to overlap the pixel electrode with a gate line or data line based on Hiraishi when Hiraishi teaches minimizing such overlap and because such overlap will increase the parasitic capacitance of the device, which Morita teaches away from doing - see col. 7, lines 28-54, for example.

Furthermore, Morita discloses a backlit LCD device (see Figs. 2 and 3, for example) that does not indicate that it needs its display quality increased, whereas Hiraishi discloses a reflective LCD device that needs to have its display quality enhanced by using a low reflective film on its gate lines and source lines. The Office Action has not demonstrated that one of ordinary skill in the art would

look to a reflective LCD display to modify a backlit display, especially where there is no indication of a need to improve the characteristics of the backlit LCD device.

Accordingly, the claimed invention recited in claims 12, 13, 23 and 24 is not obvious in view of the applied references.

Reconsideration and withdrawal of this rejection of claims 12, 13, 23 and 24 is respectfully requested.

Claims 5, 6, 9, 10, 20 and 21 stand rejected under 35 U.S.C. §103(a) as unpatentable over Morita in view of Hiraishi, and further in view of "Applicants' admitted prior art (AAPA)".

This rejection is respectfully traversed at least for the reasons that claim 1, from which claims 5, 6, 9 and 10 depend, and claim 15, from which claims 20 and 21 depend, are traversed, above. Additionally, Applicants have not made a clear, unequivocal and unmistakable admission of any prior art, including the "related art" disclosed in Figs. 1-4. The Office Action has not presented any objective factual evidence to support a conclusion that Applicants have made a clear, unmistakable and unequivocal admission that Figs. 1-4 are prior art to Applicants.

Moreover, the fact that CrOx has a reflectivity of about 3% and may be widely used does not remedy the aforementioned deficiencies of the applied reference combination.

Accordingly, reconsideration and withdrawal of this rejection of claims 5, 6, 9, 10, 20 and 21 are respectfully requested.

Claims 3, 4, 17 and 19 stand rejected under 35 USC §103(a) as unpatentable over Morita, as applied in the rejection of claims 1, 11, 14, 15, 22, 25 and 26 taken in view of Hiraishi and further in view of U.S. Patent 6,172,723 to Inoue et al. (hereinafter, "Inoue"). This rejection is respectfully traversed.

Claims 3 and 4 depend from claim 1, claims 17 and 19 depend from claim 15, and are allowable over the applied art at least for the reason that claims 1 and 15 are allowable over the applied art, for reasons stated above. Hiraishi is not properly combinable with Morita. Morita discloses a backlit LCD device (see Figs. 2 and 3, for example) that does not indicate that it needs its display quality increased, whereas Hiraishi discloses a reflective LCD device that needs to have its display quality enhanced by using a low reflective film on its gate lines and source lines. The Office Action has not demonstrated that one of ordinary skill in the art would look to a reflective LCD display to modify a backlit display, especially where there is no indication of a need to improve the characteristics of the backlit LCD device.

Furthermore, the Office Action has not provided objective factual evidence that providing a low reflective film on its gate lines and source lines would enhance the backlit LCD device.

Additionally, claims 3, 4, 17 and 19 do not recite the gate lines and data lines have a low reflective coating. These claims recite that the electrodes have the low reflectivity coatings, not the lines that connect to the transistor

electrodes. A gate electrode is not a gate line, and a source electrode is not a source line. The Office Action provides no objective evidence that it would be obvious to place a low reflective layer on a gate electrode of Morita.

The Office Action then turns to Inoue as a teaching reference. However, Inoue is another reflective type LCD device that has fundamentally different viewing characteristics than does the backlit type LCD device of the base reference of Morita. The Office Action focuses on the embodiment of Fig. 11, which uses a low reflection film on the high reflection conductive film used as pixel reflection electrodes and pixel separation films. The Office Action concludes that, in view of Inoue, it would be obvious to form a low reflective layer patterned on an electrode such as the gate electrode and the source/drain electrode to enhance image quality display.

Applicants respectfully disagree because the Office Action has not demonstrated that one of ordinary skill in the art would look to a reflective LCD display to modify a backlit display, especially where there is no indication of a need to improve the characteristics of the backlit LCD device of Morita.

Furthermore, the Office Action has not provided objective factual evidence that providing a low reflective film on its pixel electrodes and pixel electrode separation films would enhance the backlit LCD device or meet the claims, or provide proper motivation to apply such films to gate or source/drain electrodes.

The significant differences between Hiraishi and Morita and between Inoue and Morita teach away from motivating one of ordinary skill in the art to modify Morita in view of either or both of these secondary references.

Accordingly, reconsideration and withdrawal of this rejection of claims 3, 4, 17 and 19 are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Robert J. Webster, Registration No. 46,472, at (703) 205-8034, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

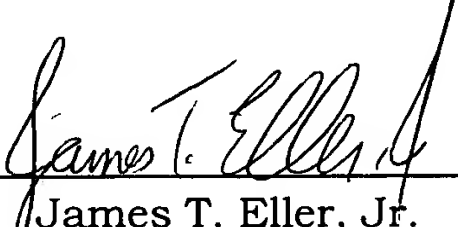
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Attorney Docket No. 0630-1524P
Reply to December 14, 2004 Office Action
Page 21

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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